

REMARKS/ARGUMENTS

The amendment to Claim 1 is supported at specification page 23, bottom, where the acicular conductive filler is described as having a diameter in the range of about 0.5 μm to about 2.0 μm and a length in a range of about 10 μm to 100 μm . As an aspect ratio is the ratio of length to diameter, the amended range of 5-200 is supported by this portion of the specification: $10/2 = 5$, while $100/0.5 = 200$. These same values for length and diameter also support new Claim 25, as $10/0.5 = 20$, while $100/2 = 50$. New Claim 24 is supported at specification page 10, lines 17-19 ($20/0.5 = 40$) and page 15, lines 11-15 ($20/1 = 20$). No new matter has been entered.

The present invention provides, among other things, an elastic conductive resin composition comprising an elastic resin and a high-aspect ratio acicular conductive filler having a surface layer of gold, silver, nickel or copper. This material provides high deformation ability against compressive forces, and high conductivity - properties useful in forming, e.g., electrical connections on IC chips. Present Figures 3 and 4 show the benefits of the presently claimed composition using an acicular conductive filler as compared with those using flake.

The rejection of Claims 1-4 as being anticipated by Chheang is traversed.

Chheang relates to a hot melt adhesive composition containing electrically conductive materials such as flake, fibers, etc. See column 10, line 34. These conductive particles may be spherical, oblong, acicular, platelet-shaped, flake shaped, etc., as noted at column 10, lines 35-40. Nothing in the reference discloses or suggests any benefit of acicular conductive fillers in general, and nothing in the reference discloses or suggests the presently claimed acicular conductive fillers having an aspect ratio of 5-200 and a surface layer of gold, silver, nickel or copper. As none of the Examples in the reference use acicular conductive filler, and because the reference presents an enormous range of choices regarding filler shape and

optional coating, Chheang does not meet the legal requirements to constitute anticipation. This is particularly true in view of the above amendment to the claims regarding aspect ratio, and because Chheang discloses acicular particles as equivalent to flake, the results presented in the present invention showing the superiority of the presently claimed acicular materials as opposed to flake (see, e.g., present Figures 3 and 4 and the discussion of the results therein at specification page 11, lines 1-5), it is clear that the presently pending claims are patentable over this reference as it neither anticipates nor renders obvious the claimed subject matter.

The rejection over Hanrahan is traversed.

Hanrahan discloses a thermally conductive article comprising a polytetrafluoroethylene matrix and thermally conductive particles. At column 3, line 52, metal fiber and metal coated fiber are generically described within a host of preferred thermally conductive particles. Importantly, none of the reference examples use an acicular conductive filler as claimed and, in fact, the reference uses in Example 3 silver flake.

Accordingly, Hanrahan does not meet the legal requirements for anticipation, as the reference does not disclose the presently claimed elastic conductive resin composition. Moreover, the reference cannot be said to suggest the presently claimed invention, as the reference clearly does not appreciate the differences between acicular conductive filler and flake, as clearly demonstrated in Figures 3 and 4 herein.

Finally, the obviousness rejection over Kawaguchi in view of Chheang or Hanrahan is traversed. The secondary references Chheang and Hanrahan have been discussed above. Kawaguchi does not add sufficient disclosure to these references to render the present claims obvious.

In particular, Kawaguchi relates to anisotropically electroconductive adhesives containing metal particles in a thermoplastic insulating adhesive composition. The particles can be “whiskers of metals” as well as in particulate form (column 4, lines 15-25). However,

the reference fails to disclose or suggest the presently claimed elastic conductive resin composition in that acicular conductive fillers as presently claimed and having an aspect ratio of 5-200 are completely absent from the reference teaching, and this absence is not made up for by secondary references Hanrahan or Chheang.

Accordingly, Applicants respectfully request the reconsideration and withdrawal of the outstanding rejection over prior art references Chheang, Hanrahan and Kawaguchi. These references fail to disclose or suggest the presently claimed invention, either alone or in combination.

With regard to the 112 rejection, Applicants note that a “humidity-curing property” refers to the ability of a resin to cure in the presence of humidity, i.e., water vapor. Silicone resins commonly have such properties, and the Examiner may be aware of such materials commonly used as caulk for sealing bathtubs, windows, etc. One of ordinary skill is aware of this term, and understands its meaning.

Finally, Applicants respectfully request rejoinder and allowance of claims dependent on allowable Claim 1 (e.g., Claims 5-10, 14-19, and 22). Because Claim 1 is allowable these claims are allowable.

In view of the above amendment and remarks, Applicants respectfully submit that the present application is in condition for allowance, and early notification thereof is respectfully requested.

Respectfully submitted,

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